

### scia Mill 150 for Ion Beam Etching (IBE)

The scia Mill 150 is designed for Ion Beam Etching and Milling of single substrates up to 150 mm diameter. Carriers or wafers are loaded via an automatic handling system. Typical applications are the structuring of metal films for MEMS and sensors. The substrate holder has helium backside cooling and can be tilted and rotated.

The scia Mill 150 can be used for Ion Beam Etching (IBE) with inert gases. Additionally the system can be applied for Reactive Ion Beam Etching (RIE) as well as for Chemically Assisted Ion Beam Etching (CAIBE).

Typical applications are in the field of research and development and low volume production.



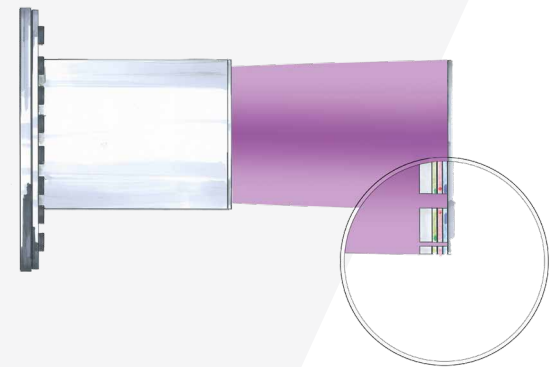
scia Mill 150

#### Features

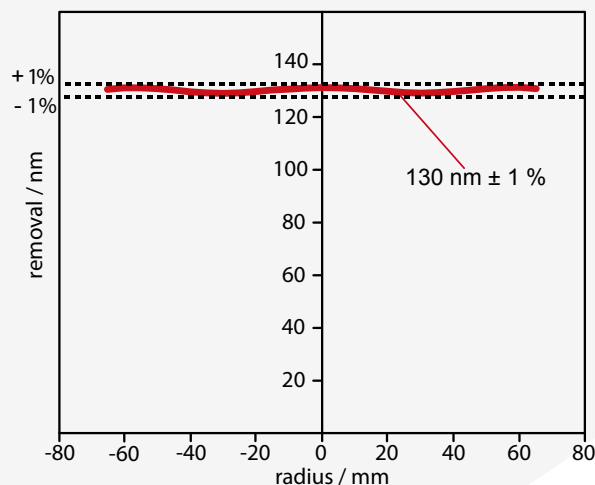
- Large area Ion Beam Etching
- IBE with inert gases
- RIBE and CAIBE with reactive gases
- Etching under a defined angle
- Water cooled substrate holder with helium backside cooling contact

#### Applications

- Structuring of MEMS and sensors
- Structuring of MRAM
- Structuring of metallic and dielectric multilayers
- Ion Beam Smoothing
- Microstructuring
- Reactive etching of III/V Semiconductors (e.g. GaAs, GaN, InP)



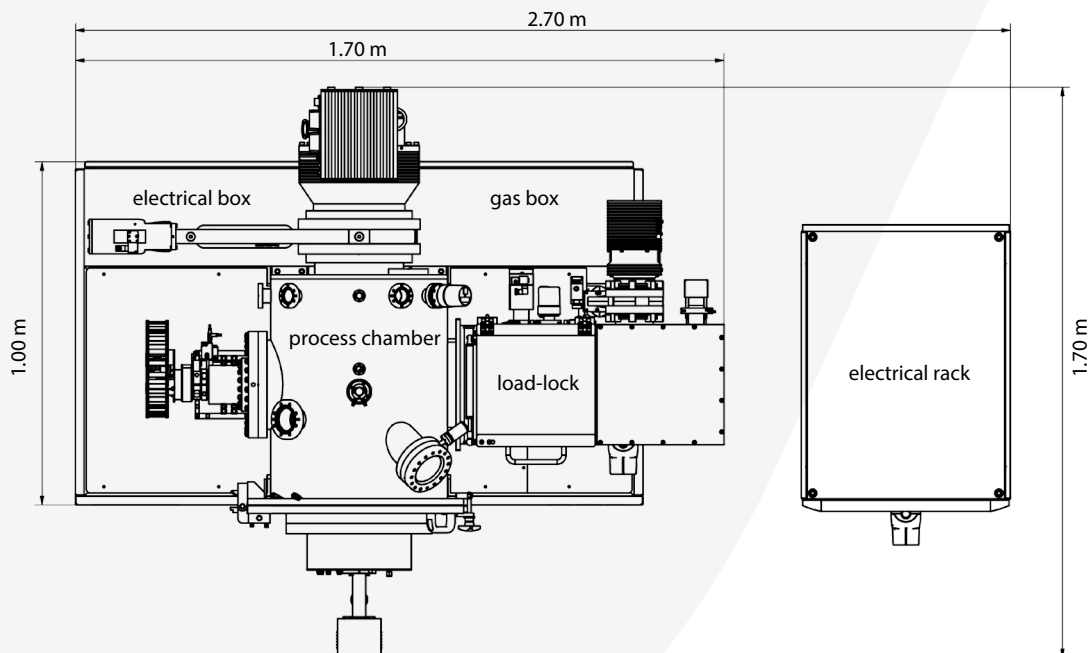
Structuring of multilayers by Ion Beam Etching



Ion Beam Etching with Argon on a 150 mm wafer with SiO<sub>2</sub>:  
uniformity variation 1 %, rate 22 nm/min

### Technical Data

<b>Substrate diameter</b>	Up to 150 mm
<b>Substrate holder</b>	Water cooled, helium backside cooling contact Substrate rotation 5 to 20 rpm Tiltable in-situ from 0° till 160° in 0.1° steps
<b>Ion beam source</b>	Circular microwave ECR-source MW218-e
<b>Neutralizer</b>	Triple plasma bridge neutralizer N-3DC
<b>Typical removal rate for SiO<sub>2</sub></b>	≥ 30 nm/min
<b>Uniformity variation</b>	≤ 1 %
<b>Base pressure</b>	< 1 x 10 <sup>-6</sup> mbar
<b>System dimensions (W x D x H)</b>	1.70 m x 1.70 m x 1.70 m (without electrical rack)
<b>Tool configuration</b>	1 process chamber, 1 load-lock (optional)
<b>Software interfaces</b>	SECS II / GEM



Footprint of scia Mill 150